December 2008 Update

Rocky Flats Superfund Site

Jefferson and Boulder Counties, Colorado
(5-Year Review date: 9/14/07)

Highlights Since the 2007 Five-Year Review

- **Property transferred to U.S. Department of the Interior on July 12, 2007 to establish a National Wildlife Refuge.**

Brief Site History: The Rocky Flats site, which the U.S. Department of Energy (DOE) renamed the Rocky Flats Environmental Technology Site, is located on 6,500 acres in Jefferson County, 16 miles northwest of downtown Denver. Approximately 300,000 people live within 10 miles of Rocky Flats. At one time the site stored more than 14 tons of plutonium, which was the second-largest repository of that element in the U.S. As of August 2003, all weapons grade plutonium has been shipped offsite. Considerable amounts of plutonium were in liquid form, contained in deteriorating piping systems but all of those liquids have been drained from the piping and stabilized. Leaking storage drums, pipelines, underground tanks; unlined disposal trenches, surface-water impoundments, and two on-site landfills all contributed to the contamination of soils and ground water at the site. Volatile organic compounds (VOCs) contaminate shallow ground water in the central section of the site. The radioactive elements plutonium, uranium and americium contaminate soil in the central and eastern portions of the site; the most contaminated soils were located on the eastern edge of the industrial area. The potential for radionuclides (radioactive particles) to become airborne during strong winds is a concern, as is the potential for plutonium in soils to be washed into the two streams that flow on either side of the Industrial Area.

Cleanup Activities Completed:

- Completed stabilization and repackaging 106 tons of plutonium residues.
- All weapons usable Special Nuclear Material shipped to offsite facilities.
- Shipped all of the site's estimated 12,600 cubic meters of transuranic waste to the Waste Isolation Pilot Plant (WIPP).
- Revised the Soil Action Levels that govern the degree to which plutonium contaminated soils at the site will be cleaned up
- Treatment of groundwater using passive collection systems that feed into treatment cells using zero valent iron and sawdust.

- Excavation and off-site disposal of 32,000 tons of plutonium and americium contaminated soils and asphalt from the three acre 903 Pad was completed in December 2003.

Current Status: Removal of plutonium and americium contaminated surface soils east of the 903 Pad is complete and the Closeout Report was approved by the U.S. Environmental Protection Agency (EPA) and the Colorado Department of Public Health and the Environment (CDPHE) on January 13, 2005. All buildings or structures (total of 805) were demolished or removed from the site, and all Closeout Reports approved.

The final remedy was selected in the September 29, 2006, Corrective Action Decision/Record of Decision (CAD/ROD) after completion of cleanup and closure by DOE under the Rocky Flats Cleanup Agreement (RFCA). Most of the property outside the Central OU was transferred on July 12, 2007, to the U.S. Department of the Interior for establishment of a National Wildlife Refuge managed by the U.S. Fish and Wildlife Service (USFWS). The U.S. Environmental Protection Agency (EPA) certified that cleanup and closure of Rocky Flats is complete.

Summary of Protectiveness: The remedy for the Central Operable Unit (OU) is protective of human health and the environment, and exposure pathways that could result in unacceptable risks are being controlled.

Issues Impacting Protectiveness: A few issues that do not immediately impact the protectiveness of the remedy were noted. The following table summarizes the status of the follow-up actions addressing these issues.

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Issues	Recommendations/ Follow-up	Follow-up Actions (Status/Due Date)	Status of Follow-up Actions 12/08	Responsible Party
1) GS10, the surface water monitoring Point of Evaluation in South Walnut Creek at Pond B-1 Bypass, showed total uranium above surface water standards in 2006. Surface water discharged from the Central OU meets surface water standards. Evaluation suggests that these reportable values are due to changes in hydrologic conditions resulting in groundwater with naturally occurring uranium making up a larger proportion of stream flow at GS10.	Continue to monitor in accordance with Rocky Flats Legacy Management Agreement (RFLMA) requirements. Employ special analytical methods to determine if natural uranium isotopic signatures have significantly changed from the levels prior to closure.	Sampling and analysis are expected to be completed by the end of 2010.	Ongoing	DOE
2) Uranium analytical results are higher than surface water standard in one of three downgradient wells.	Continue to monitor the Old Landfill (OLF) in accordance with RFLMA requirements. Employ special analytical methods to determine if isotopic signatures indicate this to be predominantly natural uranium.	Sampling and analysis are expected to be completed by the end 2008.	COMPLETE	DOE
3) A Sentinel Well is located within a hillside slump south of former B991, which has moved the well casing out of vertical and the serviceability of the well is uncertain.	Continue to monitor in accordance with RFLMA. If necessary, after movement in the area stops, replace the well after regrading of the hillside has been completed.	This is expected to be completed by the end of 2008. .	COMPLETE	DOE

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4) Changes to RFLMA surface water standards for arsenic, copper and uranium may be promulgated by the Colorado Water Quality Control Commission (CWQCC) on the completion of the triennial review for the Big Dry Creek Basin in 2009. Also, the existing temporary modification to the standards for nitrates and certain VOCs incorporated in the RFLMA surface water standards are set to expire in 2009. The impacts of any changes to standards at the time of completion of the CWQCC triennial review will depend on the results of continuing remedy implementation activities.	DOE should actively participate in the triennial review process to identify issues and collect and provide any necessary data to the WQCC for its decision making process.	The triennial review is expected to be completed by mid-2009.		DOE
5) OLF Issue: Routine inspections have identified historical seeps and small areas of slumps and slides on the cover that need to be addressed and repaired as necessary to continue to meet cover design criteria.	Continue to monitor the OLF in accordance with RFLMA requirements. Cover repairs should be made in accordance with the OLF Monitoring and Maintenance Plan so that design criteria continue to be met. Engineering evaluation to identify possible causes and approaches to address the causes should be completed.	The engineering evaluation is expected to be completed by the end of 2010.	ONGOING	DOE

Issues	Recommendations/ Follow-up	Follow-up Actions (Status/Due Date)	Status of Follow-up Actions 12/08	Responsible Party
6) Solar Ponds Plume Treatment System Treatability Study--Routine maintenance is difficult and costly.	Complete treatability study to determine whether a simpler, more efficient, and less management-intensive system could be designed and installed. Based on the results, proposed modifications should be developed in accordance with RFLMA Part 10.	Evaluation of alternatives and any proposal for recommended modifications is expected to be completed by the end of 2010.	ONGOING	DOE